

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF VIRGINIA  
ALEXANDRIA DIVISION**

ROLLS-ROYCE plc,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Civil Action No. 1:10-cv-457-LMB-JFA
	)	
UNITED TECHNOLOGIES	)	DEMAND FOR JURY TRIAL
CORPORATION (d/b/a PRATT &	)	
WHITNEY),	)	
	)	<b>PUBLIC VERSION</b>
Defendant.	)	

**UNITED TECHNOLOGIES CORPORATION'S BRIEF IN SUPPORT  
OF ITS MOTION IN LIMINE TO PRECLUDE ROLLS-ROYCE FROM  
PRESENTING EVIDENCE OR ARGUMENT AT TRIAL  
OF LOST PROFITS AND PRICE EROSION DAMAGES**

## **TABLE OF CONTENTS**

Background .....	1
Argument .....	3
I.    Legal Standard for Motions in Limine.....	3
II.   RR Should be Precluded from Seeking Lost Profits and Price Erosion Damages Expressly Barred by the Patent Act .....	3
A.    35 U.S.C. § 286 Expressly Bars Damages Stemming from Infringing Acts Occurring More than Six Years Prior to Filing the Complaint.....	3
B.    RR's Damages Claim Includes Damages Stemming from Allegedly Infringing Acts that Occurred Prior to the Statutory Damages Period .....	4
1.    RR's <i>Price Erosion</i> Damages are Barred by the Patent Act.....	6
2.    RR's <i>Lost Profits</i> Damages are Barred by the Patent Act .....	8
III.  RR Lost Profits Claim Suffers from Many Other Fatal Flaws that Should Preclude RR from Presenting that Claim to the Jury .....	10
A.    Acceptable Non-Infringing Substitutes Were Available at the Time of the Alleged Infringement.....	11
B.    RR is Not Entitled to Lost Profits on the Entire Value of the Engine Because It Cannot Satisfy the Requirements of the Entire Market Value Rule .....	11
1.    RR Offers No Economic Proof that the Forward-at-the-Tip Fan Blade Design is the Basis for Customer Demand for the Entire Engine.....	13
2.    RR Fails to Prove that Benefits Associated with the Forward-at-the-Tip Fan Blade Design are the Basis for Customer Demand.....	15
C.    RR's Lost Profit Theory is Based on Speculative Assumptions Regarding Non-Existent Engines and Future Aftermarket Profits .....	18
1.    RR's Claim for Lost Profits Based on Its Predictions of Future Engine Sales is Speculative.....	19
2.    RR's Claim for Lost Profits on Future Aftermarket Services is Speculative.....	20
D.    RR's Lost Profit Theory Improperly Assumes Inflated Engine Prices.....	22

E. RR Should Not Be Allowed to Seek Damages Based on Future Sales Because It Simultaneously Asks the Court to Enjoin UTC from Selling the Engines and Parts on Which Those Damages Are Based.....	23
IV. RR Should Not Be Allowed to Present Its Price Erosion Theory to the Jury.....	23
A. RR's \$1.4 Billion Price Erosion Theory Ignores Economic Reality .....	24
1. Engine Market Background .....	24
2. Woodford's Exorbitant Price Increase on Engines .....	25
3. Woodford's Exorbitant Aftermarket Prices .....	26
4. RR Improperly Assumes the Law of Supply and Demand Does Not Apply to Jet Engines .....	27
5. Woodford Applies Price Erosion Erroneously to Non-Existent Engines .....	29
B. RR'S Price Erosion Theory Ignores Competition in the Wide-Body Jet Market.....	29
Conclusion .....	30

## **TABLE OF AUTHORITIES**

### **Cases**

<p><i>Biacore, AB v. Thermo Bioanalysis Corp.</i>, 79 F. Supp. 2d 422 (D. Del. 1999).....</p> <p><i>Bic Leisure Prods., Inc. v. Windsurfing Int'l, Inc.</i>, 1 F.3d 1214 (Fed. Cir. 1993).....</p> <p><i>Bradford Co. v. Jefferson Smurfit Corp.</i>, No. 2000-1511, 2001 WL 35738792 (Fed. Cir. Oct. 31, 2001).....</p> <p><i>Cornell Univ. v. Hewlett-Packard Co.</i>, 609 F. Supp. 2d 279 (N.D.N.Y. 2009).....</p> <p><i>Cornell Univ. v. Hewlett-Packard, Co.</i>, No. 01-CV-1974, 2008 WL 2222189 (N.D.N.Y. May 27, 2008).....</p> <p><i>Crystal Semiconductor Corp. v. Tritech Microelectronics Int'l</i>, 246 F.3d 1336 (Fed. Cir. 2001).....</p> <p><i>Eaton Corp v. ZF Meritor LLC</i>, No. 03-74844, 2007 WL 735000 (E.D. Mich. Mar. 8, 2007).....</p> <p><i>EPlus, Inc. v. Lawson Software, Inc.</i>, 3:09-cv-620, 2011 WL 250671 (E.D. Va. Jan. 26, 2011).....</p> <p><i>Fraser v. High Liner Foods (USA), Inc.</i>, 337 Fed. Appx. 883 (Fed. Cir. 2009).....</p> <p><i>Genentech, Inc. v. Insmed, Inc.</i>, 436 F. Supp. 2d 1080 (N.D. Cal. 2006).....</p> <p><i>Grain Processing Corp. v. Am. Maize-Props. Co.</i>, 185 F.3d 1341 (Fed. Cir. 1999).....</p> <p><i>Heidelberger Druckmaschinen AG v. Hantscho Comm. Prods., Inc.</i>, No. 87 Civ. 4522 (LMM), 1995 WL 693170 (S.D.N.Y. Nov. 22, 1995).....</p> <p><i>Imonex Servs., Inc. v. W.H. Munzprufer Dietmar Trenner GH</i>, 408 F.3d 1374 (Fed. Cir. 2005).....</p> <p><i>In re Diet Drugs</i>, No. MDL 1203, 2001 WL 454586 (E.D. Pa. Feb. 1, 2001).....</p> <p><i>Innogenetics, N.V. v. Abbott Labs.</i>, 512 F.3d 1363 (Fed. Cir. 2008).....</p>	<p>12</p> <p>10</p> <p>4</p> <p>14, 15</p> <p>14, 16</p> <p>24, 28, 29</p> <p>12</p> <p>3</p> <p>4</p> <p>4</p> <p>11, 24</p> <p>17</p> <p>11</p> <p>15</p> <p>23</p>
--	---

<i>IP Innovation v. Red Hat Inc.</i> , 705 F. Supp. 2d 687 (E.D. Tex. 2010).....	12
<i>Johnson Elec. N. Am. Inc. v. Mabuchi Motor Am. Corp.</i> , 103 F. Supp. 2d 268 (S.D.N.Y. 2000).....	3
<i>Lucent Tech., Inc. v. Gateway, Inc.</i> , 580 F.3d 1301 (Fed. Cir. 2009).....	11, 12, 14, 17
<i>Oiness v. Walgreen Co.</i> , 88 F.3d 1025 (Fed. Cir. 1996).....	10, 18
<i>Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.</i> , 575 F.2d 1152 (6th Cir. 1978) .....	10, 23
<i>Peters-Martin v. Navistar Int'l Transp. Corp.</i> , No. 09-1200, 2011 WL 462657 (4th Cir. Feb. 9, 2011) .....	3
<i>Standard Oil Co. v. Nippon Shokubai Kagaku Kogyo Co.</i> , 754 F.2d 345 (Fed. Cir. 1985).....	4
<i>Tel-Lock, Inc. v. Thomson Consumer Elec.</i> , No. 03-C-320, 2005 WL 741930 (N.D. Ill. Mar. 30, 2005) .....	29
<i>TruePosition Inc. v. Andrew Corp.</i> , 568 F. Supp. 2d 500 (D. Del. 2008).....	18
<i>Westinghouse Elec. &amp; Mfg. Co. v. Wagner Elec. &amp; Mfg. Co.</i> , 225 U.S. 604 (1912).....	12
<b>Statutes</b>	
35 U.S.C. § 271(a).....	4
35 U.S.C. § 284.....	4
35 U.S.C. § 286.....	passim
<b>Rules</b>	
Fed. R. Evid. 702 .....	3

At the Court’s suggestion, UTC brings this motion in limine to preclude Rolls-Royce from presenting its unrealistic and unsupported damages calculation to the jury. (See Ex A, 2/17/11 Pre-Trial Hearing Tr., at 31) Rolls-Royce seeks \$3.7 billion in “lost profits” and “price erosion” damages—more than twice the largest patent verdict in history—and seeks to treble that amount through its willful infringement allegation. Rolls-Royce grossly overreaches in an attempt to extract an unwarranted settlement, and if that fails, to shock the jury into returning an unprecedented verdict. Rolls-Royce bases its damages theories on speculative, unfounded and unrealistic assumptions, rather than economic analysis or evidentiary foundation. Further, its damages claims conflict with Federal Circuit law and include damages expressly barred by the Patent Act.

For the reasons explained below, Rolls-Royce should not be allowed to present its lost profits or price erosion damages claims to the jury.

### **Background**

Rolls-Royce (“RR”) sued UTC for infringement of U.S. Patent No. 6,071,077 (the “’077 patent”). (Dkt. 1, Complaint ¶ 16) The ’077 patent relates to the particular shape of the fan blades in a fan section (“fan stage”) of a jet engine. (*Id.* ¶ 17) RR alleges that the GP7200 engine incorporates an infringing fan stage. (*Id.* ¶ 18) The GP7200 is marketed and sold by Engine Alliance, a joint venture between UTC and General Electric. UTC manufactures a section of the GP7200, including the accused fan stage, and supplies that section to Engine Alliance. The GP7200 competes with RR’s Trent 900 engine to power the Airbus A380 aircraft, which entered commercial service in late 2007.

Airbus has sold far fewer A380s than expected and therefore the accompanying engine programs will not be as profitable as originally expected [REDACTED]

[REDACTED] (Ex. B, Jones Dep. at 192) Moreover,

Engine Alliance has delivered GP7200 engines for a mere 19 aircraft to date. Yet somehow RR contends it is entitled to \$3.7 billion in damages.

To concoct its damage claim, RR relies on speculative assumptions, unsupported opinions and misapplication of the law. Some of the flaws in RR's damages claim include:

- RR's claim includes damages expressly barred by the Patent Act, 35 U.S.C. § 286.
- RR's lost profits theory is premised on the assumption that there is no available, acceptable non-infringing fan blade that could possibly replace the patented fan blade design. That assumption is false.
- RR seeks damages measured by the value of the entire engine rather than the patented component (*i.e.* the fan blades or fan stage), despite failing to make the required showing that the allegedly inventive fan blade profile is responsible for the entire value of the engine.
- RR has calculated damages for hundreds of engines (and a [redacted] year stream of related aftermarket parts and services) that simply do not exist, but that RR *assumes* will be manufactured well into the future. This assumption is speculative, and these future deliveries will not include the accused fan blades.
- RR bases its lost profits and price erosion claims on the unsubstantiated assumption that but-for competition from UTC, RR could have raised its prices to unprecedented levels (by as much as [redacted] %), with absolutely no decrease in sales. RR's theory defies basic economics, and RR provides no valid economic analysis to support it.

RR should be precluded from presenting its lost profits and price erosion claims at trial—through its damages expert, Mary Woodford, or otherwise—because they depend on deeply flawed methodologies and assumptions. Moreover, despite filing two separate expert reports on damages, RR did not attempt to extricate any of these flaws from its claims. Instead, RR chose to “swing for the fences” with an all-or-nothing \$3.7 billion claim. Because RR's lost profits and price erosion theories cannot stand, RR should be limited at trial to presenting a reasonable royalty damages claim.<sup>1</sup>

---

<sup>1</sup> RR's purported \$1.3 billion reasonable royalty claim is also flawed, but UTC focuses here on RR's lost profits and price erosion theories.

## Argument

### I. Legal Standard for Motions in Limine

The Court has “broad latitude in ruling on the admissibility of evidence, including expert opinion.” *Peters-Martin v. Navistar Int’l Transp. Corp.*, No. 09-1200, 2011 WL 462657, at \*4 (4th Cir. Feb. 9, 2011) (internal citation and quotation omitted) (finding no abuse of discretion in district court’s decision to grant a motion in limine to exclude an expert); *accord* Fed. R. Evid. 702 (expert testimony must be “based on sufficient factors or data,” “the product of reliable principles and methods,” and must apply those “principles and methods reliably to the facts of the case.”).

The Court should exclude a damages theory where, as here, it is “speculative and not based on sound economic precepts that are explained so that a jury could understand why it is reasonable” to award the requested damages. *EPlus, Inc. v. Lawson Software, Inc.*, 3:09-cv-620, 2011 WL 250671, at \*7 (E.D. Va. Jan. 26, 2011). Speculative damages theories confuse the finder of fact and effectively ask “the jury to accept the expert’s views merely because [they were] expressed by an expert.” *Id.* The Court should reject even a seemingly polished and complex analysis if it fails to abide by basic economic principles or common sense. *See Johnson Elec. N. Am. Inc. v. Mabuchi Motor Am. Corp.*, 103 F. Supp. 2d 268, 286-87 (S.D.N.Y. 2000).

### II. RR Should be Precluded from Seeking Lost Profits and Price Erosion Damages Expressly Barred by the Patent Act

#### A. 35 U.S.C. § 286 Expressly Bars Damages Stemming from Infringing Acts Occurring More than Six Years Prior to Filing the Complaint

RR should be precluded from presenting its “price erosion” and “lost profits” damages claims because they include damages expressly barred by the Patent Act. Specifically, RR’s claims includes damages based on infringement that occurred prior to the six-year statutory damages period provided for in 35 U.S.C. § 286.

A patentee may establish patent infringement by showing that the defendant “makes, uses, offers to sell, or sells … or imports” the patented invention. 35 U.S.C. § 271(a). A patentee may recover damages adequate to compensate it for the infringement. 35 U.S.C. § 284. Section 286 of the Patent Act, however, expressly bars recovery “for any infringement committed more than six years prior to the filing of the complaint ....” 35 U.S.C. § 286.<sup>2</sup>

Therefore, a patent owner may not recover damages based on any infringing act that occurred more than six years before it filed suit. To apply § 286, “one starts from the filing of a complaint or counterclaim and counts *backward* to determine the date before which infringing acts cannot give rise to a right to recover damages.” *Standard Oil Co. v. Nippon Shokubai Kagaku Kogyo Co.*, 754 F.2d 345, 348 (Fed. Cir. 1985) (emphasis in original). RR filed this lawsuit on May 5, 2010. (See Dkt. 1, 5/5/10 Complaint) Therefore, RR may not recover damages to the extent the infringing acts on which those damages are based occurred prior to May 5, 2004. *See Fraser v. High Liner Foods (USA), Inc.*, 337 Fed. Appx. 883, 886 (Fed. Cir. 2009) (affirming summary judgment to defendant for alleged infringement occurring more than six years prior to the complaint); *Genentech, Inc. v. Insmed, Inc.*, 436 F. Supp. 2d 1080, 1094 (N.D. Cal. 2006) (granting summary judgment to defendant because “plaintiffs fail to provide evidence that [the defendant] infringed, or induced others to infringe,” within the damages limitation period).

**B. RR’s Damages Claim Includes Damages Stemming from Allegedly Infringing Acts that Occurred Prior to the Statutory Damages Period**

RR’s “price erosion” and “lost profits” damages calculations include substantial damages stemming solely from alleged infringement that occurred before § 286’s six-year statutory

---

<sup>2</sup> Section 286 provides an absolute bar to damages, and thus is distinct from a laches or statute of limitations defense and it need not be pled as an affirmative defense. *Bradford Co. v. Jefferson Smurfit Corp.*, No. 2000-1511, 2001 WL 35738792, at \*9-\*10 (Fed. Cir. Oct. 31, 2001).

damages period. Because RR has included such legally impermissible damages in its price erosion and lost profits claims, it should be precluded from presenting those claims at trial.<sup>3</sup>

RR and the UTC-GE joint venture, Engine Alliance, compete for the sale of engines to be used on Airbus A380 airplanes.<sup>4</sup> These competitions, or “campaigns,” take place years in advance of the manufacture, delivery and use of the engines. (See Ex. C, Woodford Report ¶¶ 44-46) When Airbus began taking orders for the A380 in 2000, “Rolls-Royce and the Engine Alliance competed over which company would supply the engines for these planes to the airlines.” (*Id.* at ¶ 44) RR offered its Trent 900 engine, and Engine Alliance offered the GP7200. In these engine campaigns, the companies each made offers to the individual airlines that included the prices (or concessions) and other terms under which they would supply their respective engines and aftermarket products. [REDACTED] With each campaign for a particular airline, either RR or Engine Alliance—but not both—won the business. The airline announced its choice by placing “firm” orders, as well as “option” orders, for airplanes with the winning manufacturer’s engines. According to RR’s expert, a firm order indicates “the airline or customer has a commitment to purchase those engines.”<sup>5</sup> (Ex. C, Woodford Report ¶ 47)

---

<sup>3</sup> Because RR has the burden of proving damages, UTC has not attempted to provide a “corrected” version of RR’s damages calculation limited to damages stemming from engines that were actually offered for sale, sold or made *within* the statutory damages period, which may be recoverable. Nor did UTC attempt to correct for other flaws in RR’s claim that UTC addresses below. It was RR’s burden to offer a sustainable damages theory and it failed to do so.

<sup>4</sup> For purposes of this motion only, UTC and Engine Alliance are treated as one, to correspond with the methodology RR’s damages expert used. They are in fact separate companies. Because of that fact alone, RR’s damages methodology—which is based on offers to sell made by a third party and the value of the product made by that third party—is fatally flawed. UTC does not address that fundamental defect in this motion.

<sup>5</sup> Although they are labeled “firm” orders, such orders often do not come to fruition. For example, Engine Alliance had “firm orders” for 42 GP7200 engines each from UPS and FedEx,

### 1. RR's *Price Erosion* Damages are Barred by the Patent Act

For the engine campaigns that RR won, RR claims that it is "entitled to damages on its own orders and sales of [the] Trent 900 as a result of price erosion." (*Id.* at ¶ 115) RR contends that UTC's competition during the campaigns "directly affected the prices Rolls-Royce was able to charge its customers" for RR Trent 900 engines. (*Id.* at ¶ 116) RR's expert, Mary Woodford, states: "it is my opinion Rolls-Royce would have negotiated higher net prices" for its engines but for the allegedly infringing competing offers to sell the airlines the GP7200.<sup>6</sup> (*Id.* at ¶ 118)

By definition, RR's price erosion claim is based on campaigns that RR won and Engine Alliance/UTC lost. Thus, for purposes of applying § 286, the sole infringing act that allegedly caused RR to offer the airline a lower price (or higher concession) is the competing offer to sell the GP7200. There is no other "infringement" associated with RR's price erosion claims because where RR won the campaign, Engine Alliance/UTC necessarily has not and will not make or sell a single engine for that customer. Section 286, therefore, precludes RR from recovering price erosion damages stemming from offers to sell the GP7200 prior to May 5, 2004.

[REDACTED]  
[REDACTED]  
[REDACTED]. (*Id.* at Ex. D.1) She then calculated price erosion damages by comparing the difference between the actual price/concession RR negotiated with the airlines, on average, with the average price she "predicted" RR would have negotiated but for the competing GP7200 offer.

---

*all* 84 of which were cancelled and *none* of which were ever manufactured or delivered. (See Ex. E, Woodford Dep. at 249-51)

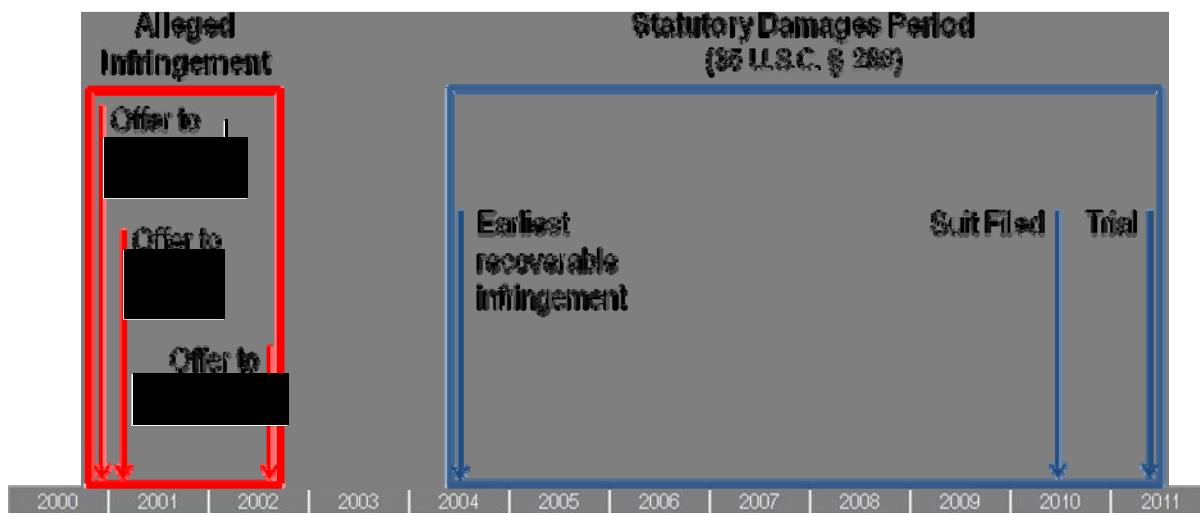
<sup>6</sup> By "higher net prices," Woodford explained that she meant RR would have agreed to lower concessions, as the engines are typically sold at a steep discount from the list price. (Ex.C, Woodford Report ¶ 121) She explained that the reduction in discount (and thus the higher net price) would have been achieved in the negotiation with the airline. (*Id.* at ¶¶ 117, 121 n.282)

(*Id.* at ¶¶ 119-123 & Exs. D, D.1 and D.2) She then multiplied this price difference by the number of engines for which RR has firm and option orders from each airline. (*Id.* at Ex. D)

Applying this methodology, RR seeks price erosion damages for orders it took [REDACTED]

[REDACTED] airplanes. (*Id.* at Ex. D.1) It is undisputed that at least the [REDACTED]

[REDACTED] prior to May 5, 2004. (*See id.* at ¶ 45 & n.100-02) For example, as shown below, RR “won” the campaign for [REDACTED]’ engine orders “at the end of 2000 ... when [REDACTED] selected the Trent 900 to power its [REDACTED] [REDACTED] A380s.” (*Id.* at ¶ 35) RR claims price erosion damages for all of the engines RR expects to deliver to [REDACTED]. But all of those damages stem from an alleged infringement—the competing GP7200 offer—in late 2000, well before May 5, 2004.



Similarly, it is undisputed that RR won the [REDACTED] campaign (engines for [REDACTED] airplanes) in early 2001, and the [REDACTED] campaign (engines for [REDACTED] airplanes) in mid-2002. (*Id.* at ¶ 45 n.101 and Ex. D.1; *id.* ¶ 45 n.102 and Ex. D.1) In both cases, as with [REDACTED] the alleged infringement—the competing offers to sell the GP7200—that purportedly caused RR to offer a lower price for its Trent 900 and for which it now seeks price erosion damages, occurred prior to

May 5, 2004. It is undisputed, therefore, that the alleged infringement on which RR bases its price erosion damages for those three customers—*i.e.*, the allegedly infringing competing offer to sell the GP7200 that purportedly caused RR to offer a lower price—occurred prior to the six-year statutory damages period.

The damages associated with [REDACTED] infringing competing offers make up a substantial portion of Ms. Woodford's \$1.4 billion price erosion damages claim. (*Id.* at Ex. D.1 (showing these [REDACTED] total airplanes for which RR calculates price erosion damages)) But these damages are expressly barred by § 286 because the allegedly infringing acts on which they are based took place prior to May 5, 2004. Accordingly, RR should be precluded from pursuing its price erosion claim—which improperly includes these damages—at trial.

## 2. RR's *Lost Profits* Damages are Barred by the Patent Act

For the campaigns that RR lost, it seeks “lost profits” damages for the firm orders Engine Alliance received for the GP7200 engines, and the associated spare parts and services RR contends will necessarily flow from each such order. (*See generally id.* at ¶¶ 49-114) RR's lost profits claim is \$2.3 billion of its total claim. RR's damages calculation, however, includes lost profits for a substantial number of non-existent engines that were ordered prior to May 5, 2004, but have never been manufactured.<sup>7</sup> As to those non-existent engines, the only “infringement” for purposes of § 286 on which RR does (or even could) base its damages claim is the offer to sell those engines that resulted in the “firm orders.” (*Id.* at ¶ 83 (RR says the “firm orders” from Engine Alliance's sales “provide the basis for Rolls-Royce's quantity of lost sales.”)) Section

---

<sup>7</sup> RR seeks lost profits damages for approximately 568 engines (4 engines for 128 Airbus A380s and 56 spare engines). (Ex. C, Woodford Report ¶ 105 & Ex. L) As of the date of Woodford's report, however, Engine Alliance had delivered engines for only 19 of the 128 airplanes on which RR bases its damages claim. (*Id.* at ¶ 47 n.116)

286, therefore, precludes RR from recovering lost profits on these non-existent engines that are based solely on offers (and resulting orders) that occurred prior to May 5, 2004.<sup>8</sup>

It is undisputed, however, that RR's lost profits claim includes damages from alleged infringement occurring prior to May 5, 2004. By way of example only, RR's lost profits claim includes damages stemming from Engine Alliance's August 2003 campaign that resulted in firm orders from International Lease Finance Corporation ("ILFC") for GP7200 engines on four A380s. (*Id.* at Exs. K & L) But no engines have ever been made, used or delivered in connection with the ILFC orders. (Ex. B, Jones Dep. at 290-91) Because the only allegedly infringing act on which RR bases those damages—the offer to sell that resulted in ILFC's firm orders—occurred prior to May 5, 2004, RR may not recover damages relating to those engines.

Similarly, Air France accepted the allegedly infringing offer to sell the GP7200 in mid-2001 when it ordered 10 airplanes with GP7200 engines. (Ex. C, Woodford Report ¶ 46 n.110, ¶ 89) And Emirates placed orders for GP7200s on 43 airplanes in 2002 and 2003. (*Id.* at ¶ 46 n.111 (22 orders in February 2002, and 21 orders in December 2003)) RR claims lost profits damages for all of these engines. But the majority of those engines do not exist; they have not been manufactured, used or delivered. (*Id.* at Ex. K) Thus, the only allegedly infringing act on which RR bases the majority of these damages—the offers to sell the GP7200 that resulted in Air France's and Emirates' firm orders—occurred prior to May 5, 2004.

For each of these airlines, the only allegedly infringing acts on which RR can base its lost profits damages for the non-existent engines are the allegedly infringing offers for sale that occurred prior to the May 5, 2004 statutory damages cut-off. Because RR's lost profits claim

---

<sup>8</sup> As explained in detail in Section III.C below, RR's attempt to seek lost profits for non-existent engines also fails because such damages are inherently speculative.

includes damages for engines based solely on allegedly infringing acts that occurred prior to May 5, 2004, its claim is barred by § 286.<sup>9</sup>

### **III. RR Lost Profits Claim Suffers from Many Other Fatal Flaws that Should Preclude RR from Presenting that Claim to the Jury**

Regardless whether the Court finds RR’s lost profits and price erosion claims are barred by statute, RR’s claims should also be barred because they suffer from many other fundamental flaws. RR bears the burden of proving that it is entitled to lost profits. *Oiness v. Walgreen Co.*, 88 F.3d 1025, 1031 (Fed. Cir. 1996). To obtain lost profits, RR must prove “(1) demand for the patented product, (2) absence of an acceptable non-infringing substitute, (3) [its] manufacturing and marketing capability to exploit the demand, and (4) the amount of the profit [it] would have made.” *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978); *see also Bic Leisure Prods., Inc. v. Windsurfing Int’l, Inc.*, 1 F.3d 1214, 1218 (Fed. Cir. 1993). RR’s claim to lost profits “may not be speculative,” and it “must show a reasonable probability that, absent the infringement, it would have made the infringer’s sales.” *Bic Leisure Prods., Inc.*, 1 F.3d at 1218.

RR’s claim to lost profit fails for several reasons: (1) Acceptable non-infringing substitutes were available at the time of the alleged infringement; (2) RR has improperly calculated lost profits on the entire value of the engine, as opposed to the value of the patented fan blades or fan stage; (3) RR includes speculative future lost profits for non-existent engines and aftermarket services; (4) RR assumes without analysis that Engine Alliance customers would have paid hundreds of millions of dollars more for RR’s Trent 900 (and a [redacted] year stream of

---

<sup>9</sup> Because RR bases its alternative “reasonable royalties” damages calculation on the same engines on which it bases its lost profits claim, § 286 will also reduce its royalties claim. UTC’s current motion is limited to precluding RR’s lost profits and price erosion damages. If necessary, UTC will address this and other flaws in RR’s royalties claim in a separate motion.

related aftermarket parts and services) in the “but-for world” than those customers agreed to pay for the GP7200 in the real world; and (5) RR claims damages for future engine sales despite simultaneously requesting an injunction that would preclude such sales. Given these fatal flaws in its analysis, RR should not be permitted to present its lost profits claim to the jury.

**A. Acceptable Non-Infringing Substitutes Were Available at the Time of the Alleged Infringement**

RR cannot satisfy the threshold requirement of its lost profits claim—that no “acceptable non-infringing substitute” fan blade design was available to UTC. UTC has set forth in detail in its Brief in Opposition to RR’s Motion in Limine No. 2, the reasons why RR cannot satisfy this threshold requirement, and incorporates that discussion here. Because the evidence shows that UTC would have utilized an available and acceptable non-infringing fan blade design—one that has been designed, developed and FAA-approved in the real world—RR cannot recover lost profits damages. *See Grain Processing Corp. v. Am. Maize-Prod. Co.*, 185 F.3d 1341, 1356 (Fed. Cir. 1999) (affirming the denial of lost profits due to availability of a non-infringing alternative).

**B. RR is Not Entitled to Lost Profits on the Entire Value of the Engine Because It Cannot Satisfy the Requirements of the Entire Market Value Rule**

A patentee can recover lost profits for a machine containing both patented and unpatented features only if the patentee satisfies the requirements of the “entire market value rule.” This rule allows calculation of damages based on the value of an entire product containing several features, only “when the patent-related feature is the ‘basis for customer demand.’” *Imonex Servs., Inc. v. W.H. Munzprufer Dietmar Trenner GH*, 408 F.3d 1374, 1380 (Fed. Cir. 2005); *see also Lucent Tech., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1336 (Fed. Cir. 2009).<sup>10</sup> A patented

---

<sup>10</sup> In *Lucent*, the Federal Circuit rejected a patentee’s claim for damages based on the entire product, stating that there had been no showing that the patented feature was “the basis – or even

component is “the basis for customer demand” where it “was of such paramount importance that it substantially created the value of the component parts.” *IP Innovation v. Red Hat Inc.*, 705 F. Supp. 2d 687, 689 (E.D. Tex. 2010) (Rader, C.J., sitting by designation).

The patentee bears the burden of proving that the patented feature is the basis for customer demand regardless whether the patentee seeks a royalty or lost profits. *Id.* at 690 (reasonable royalty); *Biacore, AB v. Thermo Bioanalysis Corp.*, 79 F. Supp. 2d 422, 470-71 (D. Del. 1999) (lost profits). A patentee must prove that the patented feature was the basis for consumer demand even if the market is composed of only two suppliers. *Id.* at 470-71.

The entire market value rule serves important purposes in patent law. The rule limits the damages a patentee can recover for infringement to avoid the expansion of the monopoly right conferred by a patent. It also eliminates the potential for duplicative recovery against an accused infringer. *Lucent*, 580 F.3d at 1336-37 (tracing origins of the rule to the requirement that “if plaintiff’s patent only created a part of the profits, he is only entitled to recover that part of the net gains”) (citing *Westinghouse Elec. & Mfg. Co. v. Wagner Elec. & Mfg. Co.*, 225 U.S. 604, 614-15 (1912)); *Eaton Corp v. ZF Meritor LLC*, No. 03-74844, 2007 WL 735000, at \*4 (E.D. Mich. Mar. 8, 2007) (“If not for [the entire market value rule], an infringer could be required to pay multiple recoveries on a single product to numerous patentees.”).

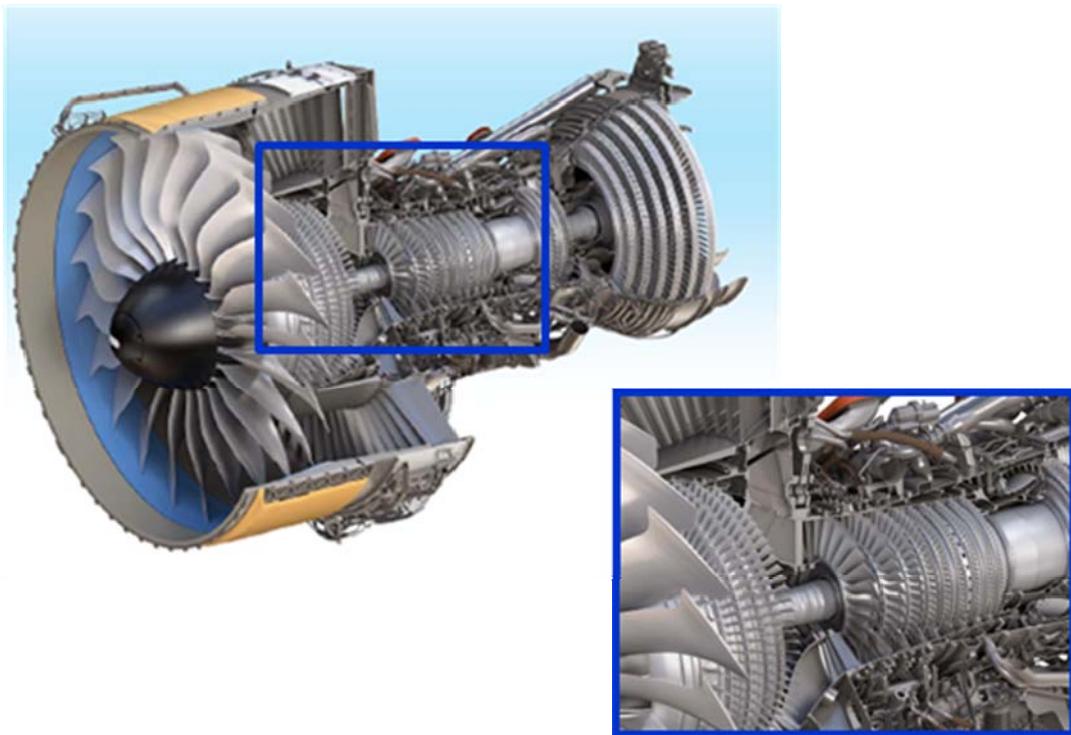
Here, RR’s attempt to base its \$3.7 billion damages claim on lost profits and price erosion related to the entire engine fails because RR cannot satisfy the entire market value rule.

---

a substantial basis – of the consumer demand.” 580 F.3d at 1337. Notwithstanding this statement, the standard is whether the patented component is “the basis for customer demand,” as the Court also recognized in *Lucent*. *Id.* at 1336 (“For the entire market value rule to apply, the patentee must prove that the patent-related feature is the ‘basis for customer demand.’”).

**1. RR Offers No Economic Proof that the Forward-at-the-Tip Fan Blade Design is the Basis for Customer Demand for the Entire Engine**

RR's patent relates to the shape of the fan blade, and particularly the forward aerodynamic sweep at the tip of the blade. As shown below in the pictures of the GP7200 engine, the shape of the fan blade is just one aspect of a single component in a large and complicated machine with thousands of other parts that are wholly unrelated to the technology claimed in the '077 patent.



There are more than 10,000 parts in an engine like the GP7200. (Ex. F, Saia Dep. at 157) In addition to the fan stage, the engine contains a high pressure compressor, a low pressure compressor, a combustor, a gearbox, a high pressure turbine, and a low pressure turbine. ([www.enginealliance.com/gpfeat.html](http://www.enginealliance.com/gpfeat.html), boxes 2-6) Each engine also has extremely sophisticated electronic control and monitoring systems and sensors, which are essential to the efficient and safe operation of the engines. (*Id.* at box 8) UTC has over 60 patents covering just the fan and low compressor portions of the GP7200, which it manufactures. (Ex. G, Adams Report ¶ 184)

GE—the largest engine manufacturer in the world—supplies half of the technology for the GP7200, and has multiple patents on the portions of the engine it manufactures.

To satisfy the entire market value rule, RR must prove the forward-at-the-tip profile of the fan blades—rather than any other combination of the thousands of parts and features of the engine—drove customer demand for the entire engine. *See Lucent*, 580 F.3d at 1337-38.

Patentees can use econometric studies such as customer surveys, regression analysis or other marketplace-wide evidence of demand sensitivities to satisfy the rule. *See, e.g., Cornell Univ. v. Hewlett-Packard, Co.*, No. 01-CV-1974, 2008 WL 2222189, at \*3 (N.D.N.Y. May 27, 2008) (Rader, C.J., sitting by designation) (*Cornell I*) (“The fact remains, however, that Cornell did not offer a single demand curve or attempt in any way to link consumer demand for servers and workstations to the claimed invention.”). Here, RR has done nothing of the sort.

RR has not offered any economic proof that the fan blade drives customer demand for the engines. Woodford did not survey—or even talk to—Airbus or any airline that purchased or ordered the GP7200 or the Trent 900. She failed to ask a single airline customer why it purchased either engine, or whether the fan blade (or even any benefits stemming from the fan blade) was the basis for demand for the engine. (Ex. E, Woodford Dep. at 113-116) She also did not provide any regression analyses or comparisons among engines to show a demand curve associated with the addition of the fan blade. This failure to provide any economic proof that the fan blade was the basis for customer demand for the GP7200 “undermine[s] any argument for applicability of the entire market value rule” here. *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279, 288-89 (N.D.N.Y. 2009) (*Cornell II*).

Instead of performing the required analysis, Woodford relies on conversations with RR employees<sup>11</sup> and her interpretation of documents produced in the case. Neither provides an adequate basis for expert testimony or the type of economic proof required to satisfy the entire market value rule. And the jury is just as adept as Woodford at reading and interpreting UTC's internal documents. *See Cornell II*, 609 F. Supp. 2d at 288-89 ("Cornell relied on the same internal Hewlett-Packard documents predicting that [the patented feature] 'would be a competitive requirement.' Cornell did not offer any customer surveys or other data to back these predictive claims."); *see In re Diet Drugs*, No. MDL 1203, 2001 WL 454586, at \*10 (E.D. Pa. Feb. 1, 2001) (denying expert testimony based on interpretation of documents where "anyone who reads and understands the English language can interpret and apply them").

By attributing 100% of the value of the GP7200 to the forward-at-the-tip profile of the fan blades, RR's theory simply assumes that none of the other parts or features of these engines drive customer demand. RR's theory assumes that none of UTC's contributions to the low compressor or low turbine, or GE's contributions to the remainder of the engine, are responsible for *any* of the value of the engine. That defies common sense.

Given RR's failure to prove through "sufficient economic proof," or even common sense, that the fan blade is the basis for customer demand and responsible for 100% of the value of these engines, it cannot seek lost profits based on the entire market value of the engine.

## **2. RR Fails to Prove that Benefits Associated with the Forward-at-the-Tip Fan Blade Design are the Basis for Customer Demand**

Because RR realizes that it lacks economic proof that the fan blade sweep profile was the basis for customer demand, RR resorts to the circular argument that the fan blade profile must be

---

<sup>11</sup> RR concedes that reliance on "conversations with [a party's] personnel" is not a valid methodology upon which an expert can base her opinion. (Dkt. 487, RR Br. in Support of Its Motion in Limine No. 2, at 16)

responsible for the entire value of the engine because the engine would not function without a fan. (Ex. C, Woodford Report ¶ 84) This argument of course proves too much, as the engine would not function without a compressor, combustor, turbine, or many other parts either.

RR next claims that it is entitled to damages for the entire market value of the GP7200 because the particular fan blade profile claimed in the '077 patent: (i) is necessary for the engine to function according to specification; and (ii) provides certain benefits (such as fuel efficiency) that were necessary for Engine Alliance to market the GP7200. (*Id.* at ¶¶ 60-61) Woodford concludes that because the fan contributes to these benefits, the fan blade is “a substantial basis—if not the basis—for the demand for the ... GP7000 engine.” (*Id.* at ¶ 54)<sup>12</sup>

Woodford’s first leap is to assume that benefits achieved by the fan blade are necessarily due to the patented forward-at-the-tip feature. But even if the fan blade shape provided some benefit to the GP7200, that does not establish that it was the basis for customer demand. To justify application of the entire market value rule, RR must prove that its patented design was solely responsible for the benefits that were the basis for customer demand. For example in *Cornell I*, Chief Judge Rader rejected the patentee’s claims that the entire market value rule was satisfied because the patented feature contributed to the product’s “superior performance,” which was the basis for customer demand. *See Cornell I*, 2008 WL 2222189, at \*3. He stated that even if “purchasers opt[ed] for . . . products because of their superior performance” the entire market value rule was not satisfied because the patented feature was “merely one of several features that enhanced performance of those processors.” *Id.*

As in *Cornell I*, RR cannot show that the fan blade profile was the only source of the performance features RR claims drive demand for these engines. While Woodford asserts that

---

<sup>12</sup> Even RR’s expert would not go so far as to claim that the fan blade is “the basis” of customer demand. When asked whether the fan blade was “the basis” or “the substantial basis,” she would not say whether she believed the fan blade was “the basis.” (Ex. E, Woodford Dep. at 270-72)

the fan blade sweep profile was necessary to meet the airlines' engine weight and fuel consumption requirements, her own report undercuts that opinion. She relies on testimony that in fact shows that the fan performance (which itself is driven by much more than just the fan blade profile) was only one of eight key features on which Engine Alliance relied to achieve the required engine weight and fuel consumption. (Ex. C, Woodford Report ¶ 57) RR cannot simply ignore the other features that contributed to the desired engine characteristics, which alone show that the fan blade profile could not have been the basis for customer demand.

Second, even if all of the desired performance features were attributable to the fan blade profile (they were not), Woodford ignores many other factors that are undisputedly important to an airline's engine selection decision. To satisfy the entire market value rule, RR must explain why these other factors were less important than the fan blade to an airline's decision. *Lucent*, 580 F.3d at 1337-38 (“[W]hen we consider the importance of the many features not covered by the Day patent compared to the one infringing feature in Outlook, we can only arrive at the unmistakable conclusion that the invention . . . is not the reason consumers purchase Outlook.”); *Heidelberger Druckmaschinen AG v. Hantscho Comm. Prods., Inc.*, No. 87 Civ. 4522 (LMM), 1995 WL 693170, at \*2 (S.D.N.Y. Nov. 22, 1995) (“While the folder may be an important contributing factor in demand for a printing press, the Court is not convinced that the patented chopper is the *sole* basis for the purchase.”) (emphasis in original). RR does not.

As RR concedes, no one factor drives customer demand: “Numerous factors shape consumer demand ....” (Dkt. 487, RR Br. in Support of Its Motion in Limine No. 2, at 17) According to RR’s own witnesses, there are a host of factors that impact an airline’s engine selection, including: engine price, commercial terms, maintenance and overhaul issues, reliability, safety, reputation, relationships and past experiences that individual airlines have had

with the engine manufacturers, ancillary perks offered to airlines, operating cost, engine performance (including noise and fuel efficiency), and other technical issue as well. (Ex. H, 1/7/2011 Sheard Dep. at 149-152, 205-07, 214-18, 233-34, 310-11; Ex. I, Hresko Dep. at 131-136) Without showing that benefits associated with the fan blade were more important than all of the other factors, RR cannot prove that its patented design was the basis for customer demand for these engines and thus that the entire market value rule applies.

Because RR cannot support the entire market value rule premise on which its lost profits and price erosion claims rely, the Court should preclude RR from presenting those claims at trial.

**C. RR's Lost Profit Theory is Based on Speculative Assumptions Regarding Non-Existent Engines and Future Aftermarket Profits**

RR seeks damages not only for engines and parts UTC has actually sold, manufactured and delivered, but also for sales and deliveries that RR predicts will happen as far out as █ years in the future. In fact, these future damages account for the vast majority of RR's damages claim, as there are GP7200 engines on a mere 19 aircraft as of the end of 2010. RR's burden with respect to proving future lost profits is "commensurately greater" than with respect to actual sales. *Oiness*, 88 F.3d at 1031 (internal citations and quotation omitted). Future lost profits cannot be speculative. *Id.* Uncertainties in future pricing, future competition, and future markets can all undermine a patentee's entitlement to future lost profits. *See, e.g., TruePosition Inc. v. Andrew Corp.*, 568 F. Supp. 2d 500, 526 (D. Del. 2008) (remitting a jury's lost profits award because the plaintiff "did not meet the heightened burden required to prove future lost profits damages," in part, due to the failure to consider actual sales data and the potential for decreasing future purchases). A patentee must present evidence sufficient to enable a fact finder to determine the amount of any such future lost profits on judgment, as opposed to guesswork. *See Oiness*, 88 F.3d at 1031. RR cannot meet that burden for either engine or aftermarket profits.

**1. RR's Claim for Lost Profits Based on Its Predictions of Future Engine Sales is Speculative**

RR's lost profits claim assumes that Engine Alliance will sell engines and spare engines for 128 airplanes through early 2017, when the '077 patent expires. RR's expert calculates damages for each of these projected 128 airplanes. But through 2010, Engine Alliance had only delivered engines for 19 airlines, plus a few spare engines. (Ex. C, Woodford Report Ex. K)

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED], RR's claim for lost profits on future engine sales is speculative. Those future engines do not exist. They have not been made, sold or delivered. Nor can RR prove with any reasonable certainty that they ever will be.

RR contends that it is proper to include these non-existent engines in its damages claim because they are "firm orders." But in the jet engine market, firm orders are not guaranteed sales by any means. (*See* Ex. J, Yerman Report Ex. 3) Both Engine Alliance and RR recognize that firm orders are often cancelled. In fact, Engine Alliance has already lost many firm orders for the GP7200 [REDACTED]. Federal Express and UPS, for example, each placed firm orders for 10 GP7200-powered airplanes plus spares, for a total of 84 total engines. (Ex. K, Fed Ex contract; Ex. L, UPS contract) But both companies cancelled these "firm orders" and none of the engines they ordered were ever manufactured or delivered. (Ex. E, Woodford Dep. at 249-51) Similarly, RR's own documents recognize the uncertainty of "firm" orders. For

instance, [REDACTED]

[REDACTED]

[REDACTED]

Cancellation rates for “firm orders” of other engine

programs have been substantial. (See Ex. J, Yerman Report Ex. 3)

Despite the fact that many firm orders never come to fruition, RR calculates lost profits damages based on every single Engine Alliance “firm order.”<sup>13</sup> In fact, RR even calculates damages for specific orders that the undisputed evidence shows are highly likely to be cancelled. For example, RR includes firm orders for [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] million of RR’s lost profits claim, despite the very high likelihood that they will never actually be made or delivered. (Ex. C, Woodford Report Ex. L).

By including hundreds of non-existent engines (and the associated aftermarket revenues) in its damages claim, RR increases its lost profits and price erosion claims by billions of dollars. While some of the firm orders that Engine Alliance and RR possess will likely ripen into actual sales, many others will be cancelled or deferred until after the patent has expired. It is speculative and improper for RR to claim damages today for these non-existent engines.

## **2. RR’s Claim for Lost Profits on Future Aftermarket Services is Speculative**

After the engine makers sell an engine, they often earn additional revenue by selling spare parts, maintenance and repair services over the life of the engine (“aftermarket services”).

---

<sup>13</sup> RR’s speculative assumptions about firm orders impact not only its lost profits calculations, but also its price erosion calculation. As set forth below, RR assumes in its price erosion calculations that RR will actually sell not only those engines for which it has firm orders, but also engines for those A380 “option” orders which its customers currently have. Option orders are even more speculative than firm orders.

[REDACTED]

[REDACTED]

[REDACTED]

RR's expert assumes that in the but-for world RR would have made each Engine Alliance sale—both the sales that have already happened as well as those for firm orders currently projected to be delivered by early 2017. (Ex. C, Woodford Report ¶¶ 114, 128) Woodford then assumes that in the but-for world, RR would have [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (*Id.* at ¶ 114) Finally she turns this projected [REDACTED] year future revenue stream into a 2010 amount by performing a net present value calculation. (*Id.*) Woodford's and RR's methods and assumptions are flawed for a host of reasons.<sup>14</sup>

First, a theory that relies on predictions of revenues stretching out for more than [REDACTED] years is inherently speculative. Woodford did not even attempt to account for all of the things that could happen over the next [REDACTED] years which could impact aftermarket profit (such as cancelled A380 orders, third-party spare part manufacturers or maintenance shops, or a downturn in the aviation industry). For this reason alone, Woodford's aftermarket lost profits theory should fail.

But her theory also fails because it relies upon unsupported assumptions regarding hypothetical price increases and the impact those price increases would have on demand.

---

<sup>14</sup> [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Woodford provides no support for her assumption that, in the but-for world, [REDACTED] of Engine Alliance customers would have signed up for [REDACTED]. In the real world only [REDACTED] (Ex. M, Bus. Plan Assumptions at 9) And without any analysis to support it, Woodford assumes that these customers would have paid much higher prices for aftermarket services in the but-for world than RR's customers pay in the real world. (*Id.*; Ex. J, Yerman Report Ex. 6) She provides no legitimate support for any of these speculative assumptions. Nor does she provide any economic analysis showing the impact these higher prices would have on demand.

RR's aftermarket theory is based on a host of speculative assumptions that RR's expert has not supported with proper analysis. And at base, RR's theory is that UTC should have to pay RR today for the entire amount of a hypothetical, projected [REDACTED] year aftermarket stream that may never come to pass. RR should not be allowed to offer this theory to the jury.<sup>15</sup>

#### **D. RR's Lost Profit Theory Improperly Assumes Inflated Engine Prices**

RR also bases its lost profits claim on the assumption that in the hypothetical world, Engine Alliance's customers would have been willing to pay several hundred million dollars more for RR engines than they paid for the GP7200 engines in the real world. (*See* Ex. C, Woodford Report Ex. L) Neither RR nor Woodford provide any support for this assumption. And Woodford performs no analysis to support the assumption that Engine Alliance customers

---

<sup>15</sup> RR's assumptions about aftermarket profit are also infected with the same problems as other parts of its damages theories. RR's aftermarket theory relies on the assumption that Engine Alliance will actually make and sell all of the non-existent engines it currently has on order, despite the fact that many of these will likely be cancelled or deferred beyond early 2017. RR also assumes that it should get damages from the aftermarket profits tied to all future engines even though soon all new engines will have the undisputedly non-infringing fan blades. And RR assumes that it should get all aftermarket profit from the entire engines, even though only a tiny fraction will relate to the fan stage or fan blades. (Ex. J, Yerman Report Exs. 12-13)

would have purchased the same number of engines at her assumed higher price. In other words, Woodford assumes the law of supply and demand has been suspended in her but-for world.

For this reason alone, RR is not entitled to lost profits. We address this fatal flaw in more detail in Section IV, below, as these same problems infect Woodford's price erosion theory. As set forth below, RR's theory cannot survive given that it provides no valid analysis supporting the large hypothetical price increase, and because its theory assumes that despite a large price increase, sales would not have decreased at all. Therefore RR cannot satisfy *Panduit*'s requirement that it establish with any reasonable certainty "the amount of profit" that RR would have made. *Panduit*, 575 F.2d at 1156.

**E. RR Should Not Be Allowed to Seek Damages Based on Future Sales Because It Simultaneously Asks the Court to Enjoin UTC from Selling the Engines and Parts on Which Those Damages Are Based**

RR also seeks an injunction enjoining all future sales of the GP7200. Yet RR bases its damages calculation on the assumption that hundreds of GP7200 engines will be sold in the future, with engine sales continuing through 2017 and aftermarket sales continuing through [REDACTED]. This is yet another example of RR's seeking far more than it could ever be entitled to. RR should not be allowed to seek damages based on the very engine and parts sales that will never be made if RR prevails on its injunction request. *Cf. Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363 (Fed. Cir. 2008) (reversing an injunction where damages claim included future sales because any future injury to plaintiff was compensated in the damages award).

**IV. RR Should Not Be Allowed to Present Its Price Erosion Theory to the Jury**

RR should be precluded from presenting evidence or argument related to price erosion damages because it has not based its claim on the type of "credible economic analysis" required by the Federal Circuit. A "patentee's price erosion theory must account for the nature, or definition, of the market, similarities between any benchmark market and the market in which

price erosion is alleged, and the effect of the hypothetically increased price on the likely number of sales at that price in the market.” *Crystal Semiconductor Corp. v. Tritech Microelectronics Int’l*, 246 F.3d 1336, 1357 (Fed. Cir. 2001). Critical to the required analysis is that the patentee takes into account the impact of “a higher price on demand for the product.” *Id.*

Markets almost always experience some reduction in volume due to price increases—known as market elasticity. *Id.* at 1359 (“All markets must respect the law of demand.... Markets typically have an elasticity great than zero and less than infinity.”). Although certain “very rare” markets are insensitive to price increases (*i.e.*, perfectly “inelastic”), a patentee must provide credible economic analysis demonstrating that a market is in fact perfectly inelastic. *See id.* at 1359-60 (noting that even a small price increase “does not nullify elasticity”).

#### **A. RR’s \$1.4 Billion Price Erosion Theory Ignores Economic Reality**

RR’s price erosion theory assumes that in the but-for world, RR could have forced its customers to pay astronomically higher prices for RR’s Trent 900 engines and aftermarket contracts, without losing a single order or sale. RR’s expert provides no “credible economic analysis” to support this assumption.<sup>16</sup>

##### **1. Engine Market Background**

To understand the speculative leaps Woodford makes in her price erosion analysis, it is important to understand how jet engines are sold. Jet engines have a list price. But that list price

---

<sup>16</sup> Another assumption built into RR’s price erosion claim is that in the but-for world, UTC would have walked away from the A380 program if it were not permitted to use the accused blade design, and that RR would have been the only A380 engine supplier. But as the Federal Circuit acknowledged in *Grain Processing*, “[w]ithout the infringing product, a rational would-be infringer is likely to offer an acceptable non-infringing alternative, if available, to compete with the patent owner rather than leave the market altogether.” 185 F.3d at 1351. Either Engine Alliance would have provided an engine with a different blade, or another engine manufacturer (or consortium) could have entered the market. Airbus wanted two engine sources, and spent substantial time and effort working with Engine Alliance to ensure a second source would be available. (Ex. P, Poole Dep. 13-15).

is usually discounted heavily, and the engines are ultimately sold for much less than list price.

These discounts are known as concessions. ( [REDACTED]

In the real world, [REDACTED] (Ex. [REDACTED]

C, Woodford Report ¶ 121, Ex. D.1) If an engine had a list price of [REDACTED]

[REDACTED] Woodford opines that in the but-for world, RR would have only had to discount its list prices by [REDACTED].<sup>17</sup> (*Id.* at ¶ 121, Ex.

D) Applying [REDACTED]

[REDACTED]. [REDACTED]

[REDACTED]

## 2. Woodford's Exorbitant Price Increase on Engines

Comparing the real-world prices RR's customers paid to the prices RR assumes these customers would have paid in the but-for world illustrates the ridiculousness of RR's assumed price increase. In the real world, for instance, [REDACTED]

[REDACTED] (*Id.* at Ex. D.1) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].

RR's price erosion theory also assumes that the other two biggest RR Trent 900 customers ([REDACTED])

[REDACTED] (*Id.* at Ex. D, D.1) According to RR's theory, its

---

<sup>17</sup> [REDACTED]

customers collectively would have agreed to pay approximately \$750 million more for RR's engines than they paid in the real world. (*Id.* at Ex. D)

Recognizing that no customer would tolerate a [REDACTED] increase, RR attempts to obfuscate the impact its theory has on particular customers. Woodford asserts that she simply compared the overall average actual concession to her hypothetical concession. (*Id.* at ¶ 120 & Ex. D; Ex. E, Woodford Dep. at 345-51) [REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED] (Ex. C, Wooford Report ¶ 120) This is an admission that she did not engage in a true market reconstruction and therefore has not provided the rigorous economic analysis required to support her price erosion opinion.

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

### **3. Woodford's Exorbitant Aftermarket Prices**

RR's price erosion speculation does not end with its assumptions of unrealistic increases in the up-front price of the Trent 900 engines. RR also assumes that in the but-for world its customers would have agreed to pay hundreds of millions of dollars more for aftermarket services, all of which RR claims as damages. But RR does not provide any economic support for this assumption, and it is directly contrary to the facts.

[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Woodford then [REDACTED] determined the hypothetical cost per-flight hour that RR would have charged these customers. She assumed that in the but-for world, RR would have been able to charge its customers vastly higher hourly rates than it charges in the real world.<sup>18</sup> [REDACTED]

[REDACTED]

[REDACTED] Together these assumptions increase RR's price erosion claim by more than \$550 million. (Ex. C, Woodford Report Ex. D) But yet again, Woodford provides no economic study or support for the assumption that RR's customers would have agreed to these steep price hikes.

#### **4. RR Improperly Assumes the Law of Supply and Demand Does Not Apply to Jet Engines**

In addition to assuming that its customers would have agreed to pay greatly increased prices for RR's engines and aftermarket services, RR also assumes these massive price increases would not have caused sales to decrease by even one engine. (Ex. C, Woodford Report ¶¶ 124-28 & Ex. D, D.1) In other words, RR's price erosion theory assumes that the law of supply and demand has been suspended, and that this market is perfectly inelastic.

---

<sup>18</sup> Woodford does not fully disclose what hourly rates she assumes in the but-for world. UTC's damages expert has attempted to determine those numbers and sets forth a comparison of the real world rates compared with RR's expert's but-for world rates. (Ex. J, Yerman Report Ex. 6)

RR's price erosion theory ignores the fundamental teachings of the Federal Circuit's *Crystal Semiconductor* decision. RR's failure to engage in a thorough economic analysis of the market's tolerance for price increases or the potential changes to the market that would stem from a price increase—choosing instead to assume that the market is perfectly inelastic—is fatal to its claim for price erosion damages. *See Crystal Semiconductor*, 246 F.3d at 1361.

RR's price erosion theory is not saved by its expert's paltry, three-paragraph discussion of the impact of these price hikes. Woodford characterizes her proposed [REDACTED] per plane increase in price as “small relative to the total airframe cost.” (Ex. C, Woodford Report ¶ 125)

[REDACTED]

[REDACTED] It is pure speculation to assume that airlines would incur these massive increased costs with no decrease in sales volume.

Woodford also asserts that her assumed price increases would not have dissuaded any airline from purchasing an A380 with Trent 900 engines, because (she assumes) the airline could have passed on the price increase to its customers through increased ticket prices. (*See id.* at ¶¶ 125–127) But the Federal Circuit has squarely rejected that line of reasoning. In *Crystal Semiconductor*, the patentee argued that because the patented product—a sound card CODEC—was a relatively inexpensive part in an overall expensive machine—a personal computer—“an increase in price of the CODECs would not affect the number of units sold.” 246 F.3d at 1360. The Federal Circuit explained that such a fact, even if true, did not justify assuming a price elasticity of zero: “Although the proportion of consumer income spent on a good, or in this case the proportion of total PC cost attributed to a sound card CODEC, affects the price elasticity of demand, a low proportion does not nullify elasticity.” *Id.* Because RR's price erosion theory ignores these fundamental teachings, RR should not be allowed to present it to the jury.

## 5. Woodford Applies Price Erosion Erroneously to Non-Existence Engines

Finally, RR's price erosion theory is grossly inflated because RR does not limit it to the [REDACTED] engines it has actually made and sold. Instead, RR assumes that it will sell all [REDACTED] non-existing engines for which it currently has firm orders or option orders (which are even less concrete than firm orders). (*Compare* Ex. C, Woodford Report Ex. D, D.1, D.2 *with* Ex. M, Bus. Plan Assumptions at 7) But not all of these orders will result in actual sales. (*See* III.C. above) By including these [REDACTED] non-existing engines, RR greatly increases the number of its engines to which applies its speculative theory, and greatly inflates its claimed damages.

### B. RR'S Price Erosion Theory Ignores Competition in the Wide-Body Jet Market

To prove damages, a patentee must "reconstruct the market" without the alleged infringement and prove what its economic condition would have been in that scenario. *See Crystal Semiconductor*, 246 F.3d at 1355. The patentee's damages evidence is fatally flawed if it fails to take into account—or simply assumes away—factors such as competition from non-infringing alternatives that mitigate the extent to which the patentee would have been better off without the alleged infringement. *Tel-Lock, Inc. v. Thomson Consumer Elec.*, No. 03-C-320, 2005 WL 741930, at \*10-\*11 (N.D. Ill. Mar. 30, 2005) (granting summary judgment in part because the plaintiff failed to provide evidence as to why certain alternatives were unacceptable or whether they affected consumer demand for the patented product).

RR's price erosion theory assumes that the A380 has no competition, and no substitutes that airlines would have turned to instead of giving in to RR raising its prices by more than a billion dollars. Woodford assumes away or ignores all of the wide-body jets that compete with the A380, and claims that the A380 "is in a market unto itself." (Ex. C, Woodford Report at ¶ 20) But she has no expertise upon which to base this assumption. (Ex. E, Woodford Dep. at 90,

93, 96, 106-07) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The price of an A380 (including the costs of its engines) will impact customer demand. If RR raised its engine prices to the levels that it assumes here, basic economics dictate that some airlines would have purchased fewer A380s or different airplanes. The A380 is but one of many large aircraft on the market, and others—such as Boeing’s 747-400, 747-8, 777-300ER—compete directly with it. Even if the average A380 enjoys a longer range and higher seat count than most other planes, these are merely factors customers take into account in choosing between aircraft. They are not grounds for segregating the A380 into its own market or assuming that demand is inelastic. This aircraft competition exerts downward pressure on the price of engines for the A380 and directly undermines the assumptions underlying RR’s price erosion theories.

### **Conclusion**

For the foregoing reasons, RR should be barred from presenting its lost profit and price erosion damages claims.

March 2, 2011

Respectfully submitted,

*Of Counsel:*

Philip S. Beck  
Jason L. Peltz  
Chris Lind  
Michael J. Valaik  
Hamilton H. Hill  
Paul J. Skiermont  
Andrew C. MacNally  
BARTLIT BECK HERMAN  
PALENCHAR & SCOTT LLP  
54 West Hubbard St.  
Suite 300  
Chicago, IL 60654  
Phone: (312) 494-4400  
Fax: (312) 494-4440

/s/ C. Brandon Rash  
Donald R. Dunner (DCB #38273)  
don.dunner@finnegan.com  
Allen M. Sokal (DCB #188045)  
allen.sokal@finnegan.com  
Don O. Burley (DCB #439163)  
don.burley@finnegan.com  
Gerald F. Ivey (DCB #367009)  
gerald.ivey@finnegan.com  
M. Andrew Holtman (DCB #478923)  
andy.holtman@finnegan.com  
C. Brandon Rash (VSB #72248)  
brandon.rash@finnegan.com  
FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, LLP  
901 New York Avenue, N.W.  
Washington, D.C. 20001-4413  
Phone: (202) 408-4000  
Fax: (202) 408-4400

Robert L. Burns (VSB #65159)  
robert.burns@finnegan.com  
FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, LLP  
Two Freedom Square  
11955 Freedom Drive  
Reston, VA 20190  
Phone: (571) 203-2700  
Fax: (202) 408-4400  
**Counsel for Defendant**  
**United Technologies Corporation**

**CERTIFICATE OF SERVICE**

I hereby certify that on this 2nd day of March 2011, I will electronically file the foregoing **United Technologies Corporation's Brief in Support of its Motion in Limine to Preclude Rolls-Royce From Presenting Evidence Or Argument At Trial of Lost Profits and Price Erosion Damages** with the Clerk of the Court using the CM/ECF system, which will then send notification of such filing (NEF) to the following:

Scott G. Lindvall  
Kaye Scholer LLP  
425 Park Ave.  
New York, NY 10022  
Telephone: 212-836-8700  
Facsimile: 212-836-6369  
slindvall@kayescholer.com

William P. Berridge  
Richard E. Rice  
Aaron Levi Webb  
Oliff & Berridge, PLC  
277 South Washington Street  
Alexandria, VA 22314  
Telephone: 703-836-6400  
Facsimile: 703-836-2787  
awebb@oliff.com  
rrice@oliff.com  
wberridge@oliff.com

Counsel for Plaintiff  
Rolls-Royce plc

/s/ C. Brandon Rash  
C. Brandon Rash (VSB #72248)  
brandon.rash@finnegan.com  
Finnegan, Henderson, Farabow,  
Garrett & Dunner, LLP  
901 New York Ave., NW  
Washington, DC 20001  
Phone: (202) 408-4000  
Fax: (202) 408-4400

Counsel for Defendant  
United Technologies Corporation